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December 4, 2006

VIA E-MAIL AND
REGULAR U.S. MAIL

RECEIVED
DEC 0 ? 2006
REMEDIAL RESPONSE BR. 2

Gwendolyn Massenburg, Remedial Project Manager
U.S. EPA, Region V (SR-6J)
77 West Jackson Blvd.
Chicago, IL 60604-3590

Thomas C. Nash, Associate Regional Counsel
U.S. Environmental Protection Agency – Region 5
Office of Regional Counsel
77 West Jackson, C-14J
Chicago, IL 60604

Re: Chemical Recovery Systems Inc., Elyria, Ohio

Dear Ms. Massenburg and Mr. Nash:

Enclosed please find the following documents which respond to your November 9, 2006 question as clarified in our subsequent discussions with Joan Tanaka and Tom Nash:

1. CRS Site Group Technical Memorandum: Groundwater Discharge with new Figure 3-10 ("Groundwater Flow Map"); and

2. CRS Site Group Technical Memorandum: Feasibility Study Alternative 6A Asphalt Cap with NW Corner Excavation, Disposal, and Backfill with an itemized Alternate 6a Cost Estimate.

Please contact me with any questions or concerns. Also, we would appreciate advance notice of the rescheduled public meeting on U.S. EPA's proposed plan for the CRS Site.

Sincerely,

Douglas A. Mc Williams
Chairperson, CRS Site Group

DAM:cbk
Enclosure

cc: CRS Site Group

CRS SITE GROUP TECHNICAL MEMORANDUM
GROUNDWATER DISCHARGE

This Technical Memorandum contains the CRS Site Group Response to the following USEPA question posed November 9, 2006:

> ***1) Does the site ground water discharge to the river? If so, or not, please provide the information to support the determination.***

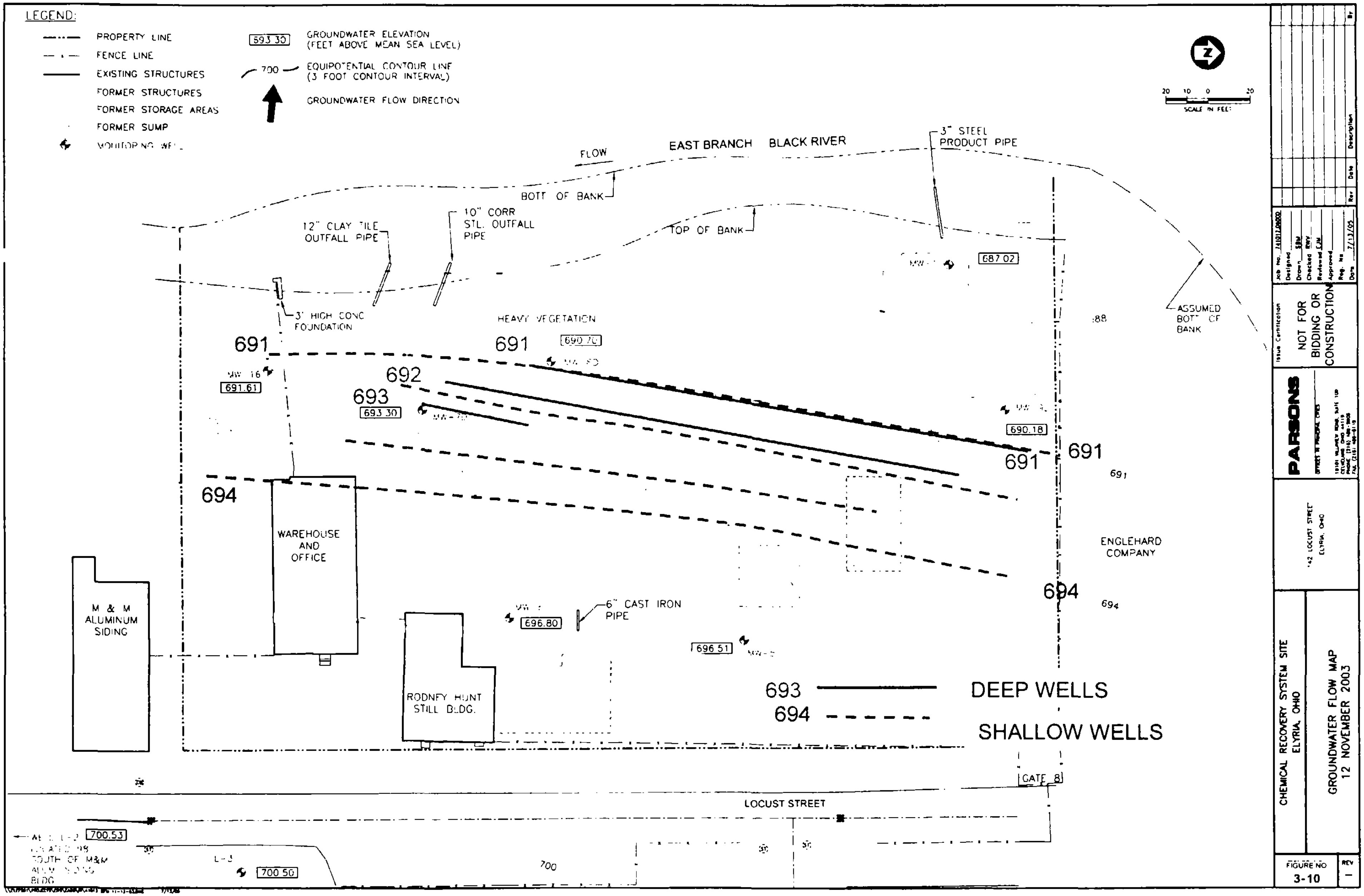
Yes, CRS Site groundwater discharges to the river. The groundwater flows east to west across the CRS Site and into the river as described in Section 3.3 of the RI Report (Rev.3). Figures 3-8 and 3-9 of the RI Report (Rev 3) demonstrate that groundwater elevations measured in November and December of 2003 are lower as we move from East to West across the site and towards the river, which supports the conclusion that shallow groundwater discharges into the river. We understand that USEPA is interested in confirming that this is true for groundwater at all levels. Our expert in hydrogeology indicates that the site data confirms that the groundwater flow is either upward or horizontal, resulting in flow to the river from the depths where the wells were screened. We have attached a new Figure 3-10 for the RI Report that summarizes the basis for his conclusions.

As discussed in detail below, available data support the conclusion that groundwater from the site flows to the river. A hydraulic gradient evaluation was performed to identify potential vertical migration at the referenced site. Using water level data for November 12, 2003, separate contours were constructed for the deep wells (MW-7D, ME-8D and MW-9D) and the shallow wells (MW-1, MW-5, MW-6, MW-16). The contours were constructed manually, using linear interpolation between pairs of wells. The contours are shown on Figure 3-10.

The map shows that the contours for the deep wells (solid red) are parallel to the contours for the shallow wells (dashed blue), which indicates that deeper groundwater flow is parallel to the shallow groundwater flow. The elevation 691 contour for the bedrock directly underlies the elevation 691 contour for the shallow wells. This shows that at the location of the contours, the potentiometric surface is vertical, which means groundwater flow is horizontal.

The elevation 692 and 693 contours for the deep wells are offset from the elevation 692 and 693 contours for the shallow wells. The offset indicates that at those locations, the potentiometric surfaces angle upwards, indicating an upward hydraulic gradient. For example, at well MW-7D, the groundwater elevation in the deep well is 693.3, while the approximate shallow groundwater elevation is 692.3.

The data also support the conclusion that contaminants detected at higher concentrations in the groundwater at the eastern edge of the site naturally attenuate before they reach the western edge of the site and before the groundwater reaches the river. For instance, TCE detected at 20,000 ug/l in MW-6 on the eastern side of the site drops to 0.32J and 1.5J ug/l at MW-7D and MW-8D respectively on the western side of the site. The low concentrations in the groundwater monitoring wells closest to the river support our conclusion that significant natural attenuation is mitigating any risk posed by contaminants in the groundwater as it reaches the river. There are no risks due to groundwater discharging into the River as the concentrations are below surface water and drinking water criteria.



LEGEND:
PROPERTY LINE
FENCE LINE
EXISTING STRUCTURES
FORMER STRUCTURES
FORMER STORAGE AREAS
FORMER SUMP
MONITORING WELL
693.30 GROUNDWATER ELEVATION (FEET ABOVE MEAN SEA LEVEL)
700 EQUIPOTENTIAL CONTOUR LINE (3 FOOT CONTOUR INTERVAL)
GROUNDWATER FLOW DIRECTION
SCALE IN FEET
FLOW
EAST BRANCH BLACK RIVER
BOTT OF BANK
TOP OF BANK
3" STEEL PRODUCT PIPE
12" CLAY TILE OUTFALL PIPE
10" CORR STL. OUTFALL PIPE
3' HIGH CONC FOUNDATION
HEAVY VEGETATION
ASSUMED BOTT OF BANK
687.02
690.70
691.61
693.30
690.18
696.80
696.51
700.53
700.50
691
692
693
694
WAREHOUSE AND OFFICE
M & M ALUMINUM SIDING
RODNEY HUNT STILL BLDG.
6" CAST IRON PIPE
ENGLEHARD COMPANY
GATE 8
LOCUST STREET
700
693 DEEP WELLS
694 SHALLOW WELLS
NOT FOR BIDDING OR CONSTRUCTION
PARSONS
CHEMICAL RECOVERY SYSTEM SITE ELYRIA, OHIO
GROUNDWATER FLOW MAP 12 NOVEMBER 2003
FIGURE NO 3-10

CRS SITE GROUP TECHNICAL MEMORANDUM
FEASIBILITY STUDY ALTERNATIVE 6A
ASPHALT CAP WITH NW CORNER EXCAVATION, DISPOSAL, AND BACKFILL

The CRS Site Group prepared this Technical Memorandum in response to the following question posed by U.S. EPA on November 9, 2006:

"What is the cost of excavating the 0.5 acres of soil that is most contaminated?"

To completely respond to this question, an additional remedial alternative (Alternative 6a) was developed that includes excavation of the northwest corner of the Site as well as a cap over the remainder of the Site. To assist your comparative analysis, this Technical Memorandum follows the same format used to describe Alternatives 1 to 6 in the Feasibility Study.

4.2.6a Alternative 6a – Asphalt Cap with NW Corner Excavation, Disposal, and Backfill

4.2.6.1a Description of Alternative

With this Alternative, the contaminated soil in the Northwest corner that has the most potential to leach VOCs to groundwater would be excavated and hauled off-site for disposal at a facility licensed to accept this waste. This area of the Site would then be backfilled with clean fill and covered in a similar manner as the remainder of the Site, unless this cover was not compatible with the future land use. The excavation would be limited to the 0.5 acre portion in the Northwest corner of the site identified in Figure 3.1 of the Feasibility Study as needing an infiltration barrier cap. The actual amount of contaminated soil removed from this area would be determined vertically and horizontally by testing to determine the soil volume with an elevated potential for leaching VOCs to groundwater. Soil excavation would continue until the predetermined areas are removed or the limits of the 0.5 acre excavation are achieved down to the bedrock. For the cost estimate, we assume the entire 0.5 acre Northwest corner will be excavated down to bedrock, which is estimated to average 15 feet in this area of the Site. The amount of soil in this 0.5 acre area assumed to be excavated in this alternative is 21,600 tons. Sheeting and shoring would be required along the north property line and the other slopes would need to be cut back. The groundwater table is near the bedrock surface. A contingency for groundwater and surface water (precipitation) handling is included in the costs.

Alternative 6a also includes an asphalt cap (Figure 3.2, Detail 1 of the Feasibility Study) that would cover the two-acre portion of the Site, which is suitable for a direct contact barrier. The asphalt cap would consist of an ODOT Item 304 crushed stone, six inches thick aggregate base and four inches of asphalt. The other 0.5 acres of the site would have the soil excavated as described above. The asphalt cap would also be placed over this 0.5 acre area if suitable for expected future land use of the Site.

The two existing buildings are assumed to be demolished and concrete and brick crushed and used on Site as backfill. Metal, glass, and asbestos containing debris is assumed to be disposed of offsite. The wood chips and other vegetation debris in the former aboveground storage tank area would be disposed of offsite. The slope of the ground surface near the riverbank would be regraded and erosion protection (riprap) would be installed. Penetrations in the existing storm sewer pipe, which is the property of the City of Elyria, would be sealed off. Repair of the storm sewer would be coordinated with the City of Elyria. A fence would be placed around the entire Site perimeter (top of slope at River). Deed restrictions would be placed on the Site to limit the future use of the Site to commercial/industrial type applications that meet the assumptions in the baseline risk assessment and are not incompatible with Site conditions.

4.2.6.2a Overall Protection of Human Health and the Environment

This alternative would be protective of human health and the environment by eliminating exposure to the contaminated soil through excavation and capping. In the short term, excavating the contaminated soil in the NW corner of the Site would increase the airborne exposure risk by volatilizing organic contaminants and generating dust that could contain other contaminants. While dust control methods could be employed to address particulate matter, it would be substantially more difficult to control volatile emissions that could result in odors and chemical exposure. This alternative would also increase the short term risk of exposure and injury from vehicle accidents or spills for those who live, work, or travel along the truck route used to transport the excavated materials, import clean fill, and deliver cap materials. If the entire NW corner must be excavated, over 1440 truckloads of contaminated soil and clean fill (a total of 2880 truck trips) would be transported through downtown Elyria. The asphalt cap and institutional controls would eliminate the risks associated with contacting the remaining soil. Potable use of groundwater is not expected and will be addressed through groundwater restrictions. There are no risks due to groundwater discharging into the River as the concentrations are below surface water and drinking water criteria.

4.2.6.3a Compliance with ARARs

Chemical Specific ARARs

The chemical specific ARARs for this proposed alternative are identical to those identified in Section 4.2.2.3 of the Feasibility Study.

Location Specific ARARs

The location specific ARARs for this proposed alternative are identical to those identified in Section 4.2.2.3 of the Feasibility Study.

Action Specific ARARs

The action specific ARARs for this proposed alternative are identical to those identified in Section 4.2.2.3 of the Feasibility Study except for the addition of the following:

- The Ohio Environmental Protection Agency (Ohio EPA) Division of Emergency and Remedial Response has issued "Asphalt Covers to Prevent Leaching at Industrial Sites" and "Use of Asphalt Covers over Contaminated Soil" (DERR-00-TDCE-001 and -004) to be considered when using an asphalt cap as a corrective action measure. These technical decision compendiums will be adhered to if the use of an asphalt cap is selected.
- The Toxic Substances Control Act (TSCA) regulates the handling and disposal of polychlorinated biphenyls under 40 CFR Part 761. This ARAR is applicable since some of the impacted soils to be excavated at the site contained concentrations of PCBs which exceeded 50 parts per million.
- Department of Transportation (DOT) hazardous material transport requirements regulate how contaminated materials may need to be handled, placarded and transported. This ARAR will be adhered to for all transported material leaving the site.

Other Criteria or Guidelines to be considered (TBC)

The TBC for this proposed alternative are identical to those in Section 4.2.2.3 of the Feasibility Study.

4.2.6.4a Long-Term Effectiveness and Permanence

For this alternative to remain effective, the cap must be maintained. Maintenance of the asphalt cap would be required as cracks develop over time. Because this alternative would leave hazardous substances onsite, a U.S. EPA review would be conducted every five years to ensure the remedy continues to provide adequate protection of human health and the environment in accordance with CERCLA §121(c). The soil removal activities should result in lower concentrations of VOCs in groundwater emanating from the northwest corner of the Site. Over time, however, natural attenuation of these constituents is expected to continue in a manner that is effective and permanent over the long term.

4.2.6.5a Reduction of Toxicity, Mobility, and Volume

This alternative is composed of two components (soil removal and a cap), which do not directly reduce toxicity or volume. Soil removal transfers the toxicity, mobility and volume of hazardous substances to the disposal facility. The asphalt cap would reduce mobility of the COCs in the soil. The process of natural degradation reduces the toxicity and volume of the contaminated material left onsite.

4.2.6.6a Short-Term Effectiveness

Dust production during the short term of the construction activities may be temporarily increased due to demolition activities, cap regrading, and excavation of the contaminated soils. Dust generation would be minimized through engineering controls required to be implemented by the Contractor specified in the construction documents. Volatile emissions that could cause odors and chemical exposure would be unavoidable given the size of the excavation and period of time needed to complete the soil removal work. Soil excavation will require additional worker protection equipment.

Alternative 6a introduces risks from transportation of contaminated materials through the community that are not part of Alternatives 1-5. An estimated 720 round trips would be required for hauling contaminated soil out of the Site through downtown Elyria, as well as an equal number of round trips for bringing clean fill into the Site, resulting in a total of 2,880 truck trips through downtown Elyria. Transportation-related risks on-site and along the truck route would increase in the short term. These include (1) the worker and inhalation risk associated with the release of volatile compounds during excavation and transportation of contaminated soils and (2) the risk of accident or spill during 1440 round trips. Additional trips to haul the cap materials (asphalt, stone, geotextile) would also be required. The cap materials would add an additional 170 round trips. The on-site environmental impacts for the remaining soil would be immediately eliminated upon construction of the cap. There are no short term issues related to groundwater either from human exposure or discharge into the River.

4.2.6.7a Implementability

The construction is estimated to take six months and require a significant number of vehicles to haul contaminated soil from the NW corner of the Site and bring clean fill to the Site. The equipment required to perform the work is readily available. Sheeting and shoring would be required to excavate the contaminated soil at the property line. Excavation to bedrock poses some problems for securing the sheeting and shoring materials in a manner that is safe for the workers. Also, excavating close to a river poses implementation challenges to ensure that erosion and the impacted runoff is prevented from being discharged to the River. Handling of perched water and groundwater during the excavation process could present implementation problems if the water level is higher than anticipated or if the contaminants in the water require special handling. The water level, when measured was at the bedrock surface. A contingency has been added to the cost estimate for handling groundwater if necessary and for handing the precipitation that enters the construction area. Also, worker exposures could pose implementation obstacles during excavation activities.

The asphalt cap would be easy to construct. An estimated 8,600 square yards of stone (6" thick) and asphalt (4" thick) would need to be brought onsite and placed across the Site to create the asphalt cap plus an additional 2,500 square yards over the backfilled clean fill in the NW corner. An asphalt cap does not self-heal and would require inspection and repair of cracks. The asphalt cap is ideal however, as a parking lot or storage area. Monitoring for signs of failure or need of repair may be readily accomplished. Additional future actions are not prohibited from being implemented by this action.

4.2.6.8a Cost

The cost of this alternative is highly dependent upon soil contaminate concentrations and the type of facility, which is permitted to accept the excavated soil. Some of the soil may require treatment/disposal at a TSCA landfill and other soil may be classified as a hazardous waste due to the concentrations of VOCs. For purposes of this estimate it is assumed that 50% of the excavated soil that will be classified as hazardous waste and that 10 percent of this, 2,160 tons, will also be classified as TSCA waste (i.e. PCB Concentrations > 50 mg/kg). This is higher than the percentage estimated in Alternative 6 because this is the area of the Site with the highest soil contamination, thus it is more likely to be classified as a hazardous waste for disposal purposes. A waste handling contingency is used in the cost estimate to accommodate special waste treatment obligations under TSCA or RCRA. This alternative retains all costs associated with the cap remedies (Alternatives 2-5), except that the geosynthetic membrane over the 0.5 acres excavated and filled with clean material would not be necessary. The capital cost for construction of this Alternative is estimated to be $6,446,000. The 30-year present net worth including an annual OM&M cost of $50,000 is $7,009,000.

The cost if all of the excavated soil is classified as hazardous was also calculated. The capital cost for this circumstance is estimated to be $10,810,000. The 30-year present net worth including an annual OM&M cost of $50,000 is $11,373,000.